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avives@eresmas.net

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Bidzilya, O.; Budashkin, Yu.

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Two new species of the genus *Scrobipalpa* Janse, 1951 from the Eastern Crimea (Lepidoptera: Gelechiidae)

O. Bidzilya & Yu. Budashkin

Abstract

Scrobipalpa halimifolia Bidzilya & Budashkin, sp. n. and *S. griseoflava* Bidzilya & Budashkin, sp. n. are described from the Eastern Crimea (Ukraine). Both species inhabit halophilic biotopes with *Halimione verrucifera* (M.B) Aellen (Chenopodiaceae), which is a host plant for *S. halimifolia* Bidzilya & Budashkin, sp. n. The external appearance of the adult and the genitalia of the new species and their habitats are illustrated.

KEY WORD: Lepidoptera, Gelechiidae, *Scrobipalpa*, new species, Crimea, Ukraine.

Dos nuevas especies del género *Scrobipalpa* Janse, 1951 del este de Crimea (Lepidoptera: Gelechiidae)

Resumen

Se describen del este de Crimea (Ucrania) a *Scrobipalpa halimifolia* Bidzilya & Budashkin, sp. n. y *S. griseoflava* Bidzilya & Budashkin, sp. n. Ambas especies se localizan en biotopos halofílicos con *Halimione verrucifera* (M. B) Aellen (Chenopodiaceae), siendo la planta nutricia para *S. halimifolia* Bidzilya & Budashkin, sp. n. Se representa el aspecto externo del adulto y de la genitalia de las nuevas especies y su hábitat.

PALABRAS CLAVE: Lepidoptera, Gelechiidae, *Scrobipalpa*, nuevas especies, Crimea, Ucrania.

Introduction

The genus *Scrobipalpa* comprises about 270 species in the Palearctic region (POVOLNÝ, 2002; FALKOVITSH & BIDZILYA, 2003, 2006, 2009; BIDZILYA, 2009; BIDZILYA & LEE, 2010; HUEMER & KARSHOLT, 2010), five species in Australia (POVOLNÝ, 1977), nearly 20 species in the Afrotropical region (BIDZILYA *et al.*, 2011) and ten species in the Nearctic region (LEE *et al.*, 2009). In Ukraine the genus *Scrobipalpa* is represented by about 40 species, of which 30 are known from the Crimea.

As a result of many years observation of the biology and taxonomic study of Microlepidoptera in the Eastern Crimea by the second author, a long series of *Scrobipalpa*-species, restricted to halophilic habitats with *Halimione verrucifera* as a dominant plant, were collected. A recently published revision of European Gnorimoschemini (HUEMER & KARSHOLT, 2010) give us an opportunity to clearly identify all *Scrobipalpa* species, occurring in these habitats, two of which are described here as new. The type material is deposited in the Zoological Museum, Kiev National Taras Shevchenko University. The terminology of the genitalia follows HUEMER & KARSHOLT (2010).

Scrobipalpa halimifolia Bidzilya & Budashkin, sp. n.

Type material. Holotype: ♂, Crimea, Dvujakornaja Buchta, okr. Ordzhonikidze, 17-VI-2006, ex. 1.

Halimione, leg. Yu. Budashkin (gen. prep. 12/08). Paratypes: 2 ♂♂, 4 ♀♀, same data as holotype (gen. prep. 18/08 ♀); 1 ♂, 5 ♀♀, same data, but 19-VI-2004; 2 ♂♂, 2 ♀♀, same data, but 15/18-VI-2006, ex l. *Halimione verrucifera*; ♀, same data, but 28-V-2005; 1 ♀, same data, but 2-VI-2007; 4 ♂♂, 3 ♀♀, same data, but 30/31-V-2007; ♂, 5 ♀♀, Crimea, okr. Nanikovo, Barakol' Lake, solonchak, 10-VII-2010, leg. Yu. Budashkin; 1 ♀, same data, but 13-VIII-2006 (gen. prep. 217/08); 3 ♂♂, 2 ♀♀, same data, but 12-VIII-2006 (gen. prep. 82/10 ♂♂); 1 ♂, same data, but 14-VI-2007; 3 ♀♀, 1 ♀, Crimea, 3 km E Ordzhonikidze, Dvujakornaja Dolina, solonchak, 19-VI-2004 (gen. prep. 212/08 ♀); 3 ♂♂, 5 ♀♀, same data, but 3-IX-2006.

Description (Figs. 1-5): Wingspan 13.2-14.0 mm. Head and thorax covered with grey, brown-tipped scales, frons light-grey to whitish, tegulae grey, mixed with light-brown; labial palpus strongly up-curved, segment 2 grey mottled with brown, with brush of short scales underside; segment 3 narrow, acute, brown with narrow light grey medial and apical rings; proboscis light grey. Scapus brown, other antennal segments brown with narrow grey rings at base. Forewing covered mainly with light grey, brown-tipped scales, costal margin, apex and termen darker, nearly blackish, veins and area along dorsum distinctly mottled with orange-brown. Brown subcostal spot at 1/4 and three dark spots in cell well developed. Fringe grey, brown-tipped. Hindwing and its fringe light grey.

Variation: Some specimens with strongly developed orange-brown scales along veins and reduced black subapical streak and dark spots in cell (Fig. 3); in other cases, orange-brown pattern nearly reduced, but dark spots in cell surrounded by orange and additional two-three black points well expressed in basal 1/4 (Figs. 4-5).

Male genitalia (Fig. 15): Tegumen narrow, prolonged. Uncus twice longer than broad, posterior margin with distinct medial depression. Gnathos short, narrow, weakly curved. Valva narrow, apical 1/4 broadly rounded, nearly exceeds the top of uncus. Sacculus about 1/4 length of valva, weakly curved inwards, outer margin strongly curved, with pointed tips. Vincular processes short, very narrow, curved outwardly towards tips of sacculus, separated by deep and broad medial incision. Tegumen moderately broad. Saccus gradually narrowed apically. Aedeagus straight, nearly as long as the length of tegumen, basal portion weakly swollen, slightly broader than distal portion, apical cornutus distinct, weakly curved basally.

Variation: Saccus slightly varies in width.

Female genitalia (Figs. 17-18): Papilla analis suboval, sparsely covered with short setae. Apophyses anteriores moderately broad, about as long as the length of segment VIII, straight, five times shorter, than apophyses posteriores. Segment VIII about as long as broad, subgenital plates narrow, broadly separated, with small foamy sclerotized patterns at anterior-medial corner. Subostial lobes broad, rounded apically, not exceeding proximal margin of segment VIII, entirely covered with microtrichia, separated by deep triangular incision. Ductus bursae moderately broad, colliculum narrow, ring-shaped. Corpus bursae rounded, signum long, weakly curved, horn-shaped, with short teeth basally, placed at the right side of the entrance of bursae copulatrix.

Variation: The teeth at the base of signum vary in length; signum from weakly curved to nearly straight.

Diagnosis: *S. halimifolia* Bidzilya & Budashkin, sp. n., externally resembles *S. artemisiella* (Treitschke, 1833) and *S. pauperella* (Heinemann, 1870) having light-brown forewing with dark blackish veins and sometimes with dark spots in cell. The new species resembles *S. hendrikseni* Huemer & Karsholt, 2010 and *S. golovushkini* Bidzilya, 2009 in the male genitalia, having narrow and straight vincular processes separated by broad medial emargination on the posterior margin of vinculum. It differs from both species in curved inwards sacculus and shorter valvae, which do not exceed the posterior margin of uncus; the new species may be separated additionally from *S. hendrikseni* by the shorter aedeagus, and from *S. golovushkini* by the nearly subrectangular rather than apically narrowed uncus. The new species also resembles *S. subnitens* Povolný, 1969 from Mongolia, but can be recognized by longer valvae and narrower uncus. The female genitalia of new species are most similar to those of *S. pulchra* Povolný, 1967 and *S. clintoni* Povolný, 1968, but differ from the first species in distinctly separated subostial lobes and from the later species in strongly foamy sculptured subgenital plates and smaller basal plate of signum.

Bionomy: The larva mines the leaves of *Halimione verrucifera* (Figs. 13-14). In the type locality larvae are observed annually from the second decade of May to the first decade of June. The larvae live in large spot-like mines on the leaves of host plant. Usually the larvae change several mines during their life. Pupation takes place

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outside of the larval habitation (in plant litter or in the upper layer of ground) in a light whitish cocoon. The pupal stage continues for nearly two weeks without diapause.

The adults were observed from the end of May to early September in *Halimione* habitats (Figs. 9-12), probably in 2-3 generations. All specimens were collected in the evening before sunset.

Distribution: Eastern Crimea (Ukraine).

Etymology: The specific name is derived from the Latin *folium* - leaf, referring to the feeding of larva on the leaves of *Halimione*.

***Scrobipalpa griseoflava* Bidzilya & Budashkin, sp. n.**

Type material. Holotype ♂, Crimea, Dvujakornaja Buchta, okr. Ordzhonikidze, 28-V-2005, leg. Yu. Budashkin. Paratypes: 8 ♂♂, 2 ♀♀, same data as holotype (gen. prep. 83/07 ♀; 10/08 ♀); 5 ♂♂, 3 ♀♀, same data, but 21-V-2007; 2 ♂♂, 1 ♀, same data but 30/31-V-2007; 5 ♂♂, same data, but 19-V-2007; 2 ♂♂, 1 ♀, same data, but 19-VI-2004; 5 ♂♂, Crimea, 3 km E Ordzhonikidze, Dvujakornaja dolina, solonchak, 19-VI-2004, leg. Yu. Budashkin (gen. prep. 219/08); 3 ♀♀, same data, but 21-V-2007 (gen. prep. 210/08); 2 ♂♂, Crimea, okr. Koktebel', Barakol' Lake, 24-V-2007, leg. Yu. Budashkin; 1 ♀, Crimea, Yu. Prisivashie, okr. L'vovo, 8-VI-2007 leg. Yu. Budashkin.

Description (Figs. 6-8): Wingspan 11.3-12.0 mm. Head yellowish-white to light brown on neck, frons white, segment 2 of labial palpus white, except brown 1/4, with brush of short scales underside, segment 3 narrow, acute, light brown with white medial and apical rings. Proboscis white. Scapus white mottled with dark, other antennal segments brown with broad white rings. Thorax and tegulae orange-yellow. Forewing covered with white brown-tipped scales, especially along costal margin in termen area; veins mottled with yellowish-orange near base and in apical 1/3; in cell three large rounded yellowish-orange spots with brown points inside, diffuse subapical white angulated fascia at 2/3; termen and apex edged with scattered orange scales; fringe white brown tipped. Hindwing white, fringe yellowish-white, brown-tipped.

Variation: There is little variation in the degree of expression of yellowish-orange pattern along veins; subapical angulated white fascia sometimes reduced or poorly expressed.

Male genitalia (Fig. 16): Tegumen moderately broad, gradually narrowed towards uncus. Uncus as long as broad, posterior margin with distinct medial depression. Gnathos short, narrow, weakly curved. Valva narrow, apical 1/4 broadly rounded, does not exceed top of uncus. Saccus about 1/4 length of valva, parallel-sided, weakly curved inwards with pointed tips. Vincular process narrow, distinctly pointed and curved outwards, slightly shorter than length of saccus, medial incision lyre-shaped. Saccus narrow, apex pointed. Aedeagus about as long as tegumen and uncus, basally swollen, distal portion slightly longer, than basal portion, straight, with distinct apical cornutus, about as long as tegumen and uncus.

Variation. Saccus slightly varies in width.

Female genitalia (Figs. 19-21): Papilla analis suboval, sparsely covered with short setae. Apophyses anteriores longer than segment VIII, straight, four times shorter, than apophyses posteriores. Segment VIII about as long as broad, subgenital plates relatively broad, broadly separated, inner area distinctly foamy sculptured. Subostial lobes gradually narrowed apically, not exceeding proximal margin of segment VIII, entirely covered with microtrichia. Ductus bursae moderately broad, colliculum narrow, ring-shaped. Corpus bursae rounded, signum weakly curved, horn-shaped, placed at the left side of the entrance of bursae copulatrix.

Variation: The subgenital lobes vary in width, in one case (Fig. 21, gen. prep. 83/07) subgenital lobes are subrectangular rather than pointed; base of signum may bear distinct teeth.

Diagnosis: The new species is very similar to *S. alterna* (Falkovitsh & Bidzilya, 2006) (Kazakhstan, Southern Ural) and *S. lutea* Povolný, 1977 (Turkey, Southern Ural) both externally and in the genitalia. It can be separated habitually from the former by the yellowish-orange, rather than grey neck, thorax and tegulae, as well as by the absence of a grey spot in the middle of wing. The male genitalia of *S. griseoflava* differ from those of both related species in the narrower and strongly curved vincular processes and shorter valvae, which do not exceed posterior margin of uncus.

The female genitalia seem to be indistinguishable from those of *S. alterna* and *S. lutea*, except for distinctly defined corpus bursae.

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Bionomy: The adult flies from the third decade of May to the third decade of June. The host plant is unknown, but most likely it is *Halimione verrucifera* (Fig. 8). *S. griseoflava* Bidzilya & Budashkin, sp. n. is restricted to halophilic biotopes with *Halimione* spp., where it occurs in May-June together with *S. halimifolia* Bidzilya & Budashkin, sp. n. and *Scrobipalpa halimioniella* Huemer & Karsholt, 2010. The last species was recently recorded from the Ukraine for the first time (BIDZILYA *et al.*, 2011). All specimens were collected in the evening before sunset.

Distribution: Eastern Crimea (Ukraine).

Etymology: The specific name is derived from the Latin *griseus* - grey, and *flavus* - yellow in reference to the wing pattern

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*O. B.

Kiev National Taras Shevchenko University
Zoological Museum
Vladimirska str., 60
UK-01033 Kiev
UCRAINIA / UKRAINE
E-mail: bidzilya@univ.kiev.ua

Yu. B.

Karadagh Nature Reserve
Ukrainian Academy of Sciences
P/o Kurortnoe Pheodosia
UK-98188, AR Crimea,
UCRAINIA / UKRAINE
E-mail: budashkin@pochta.ru

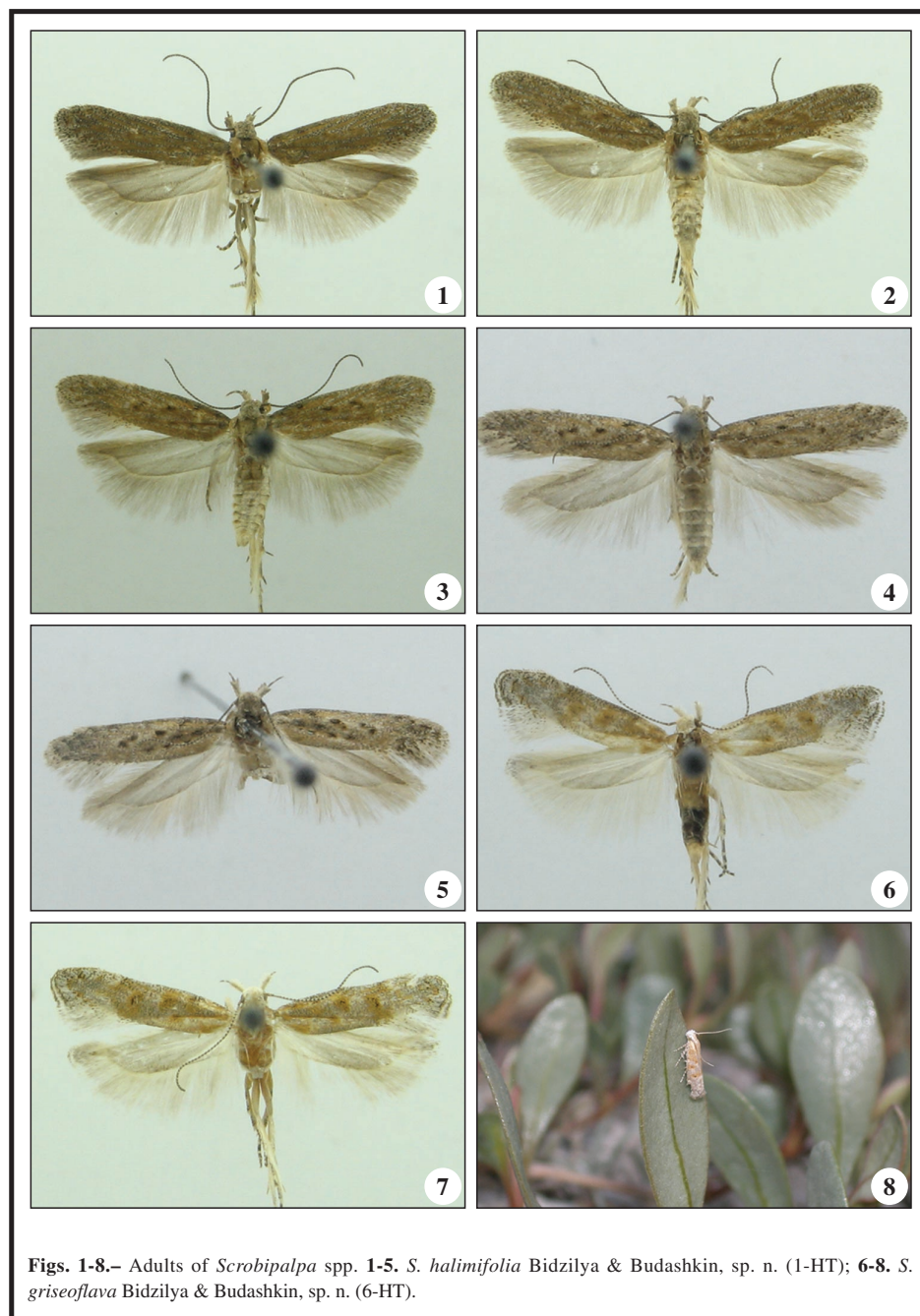
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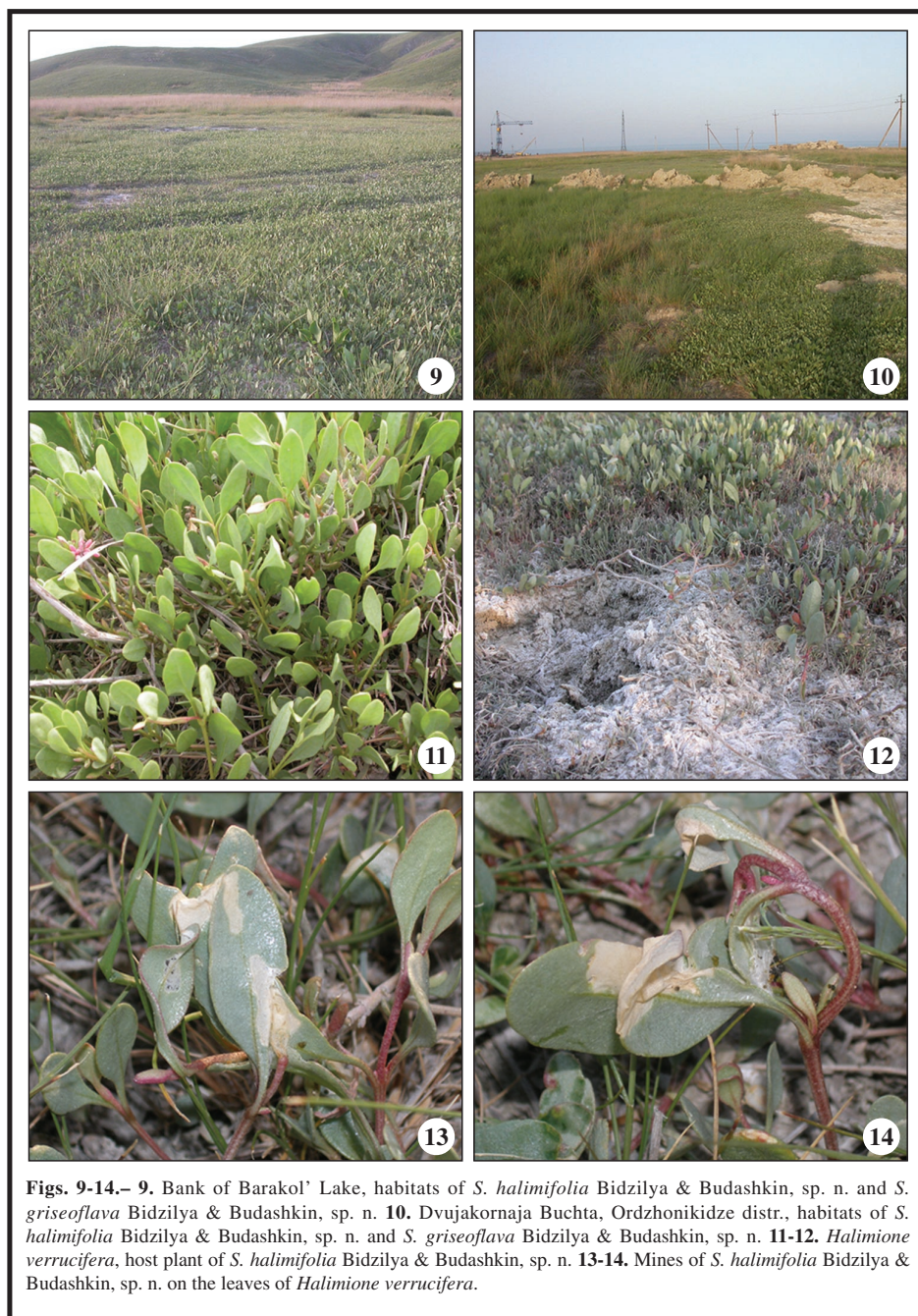
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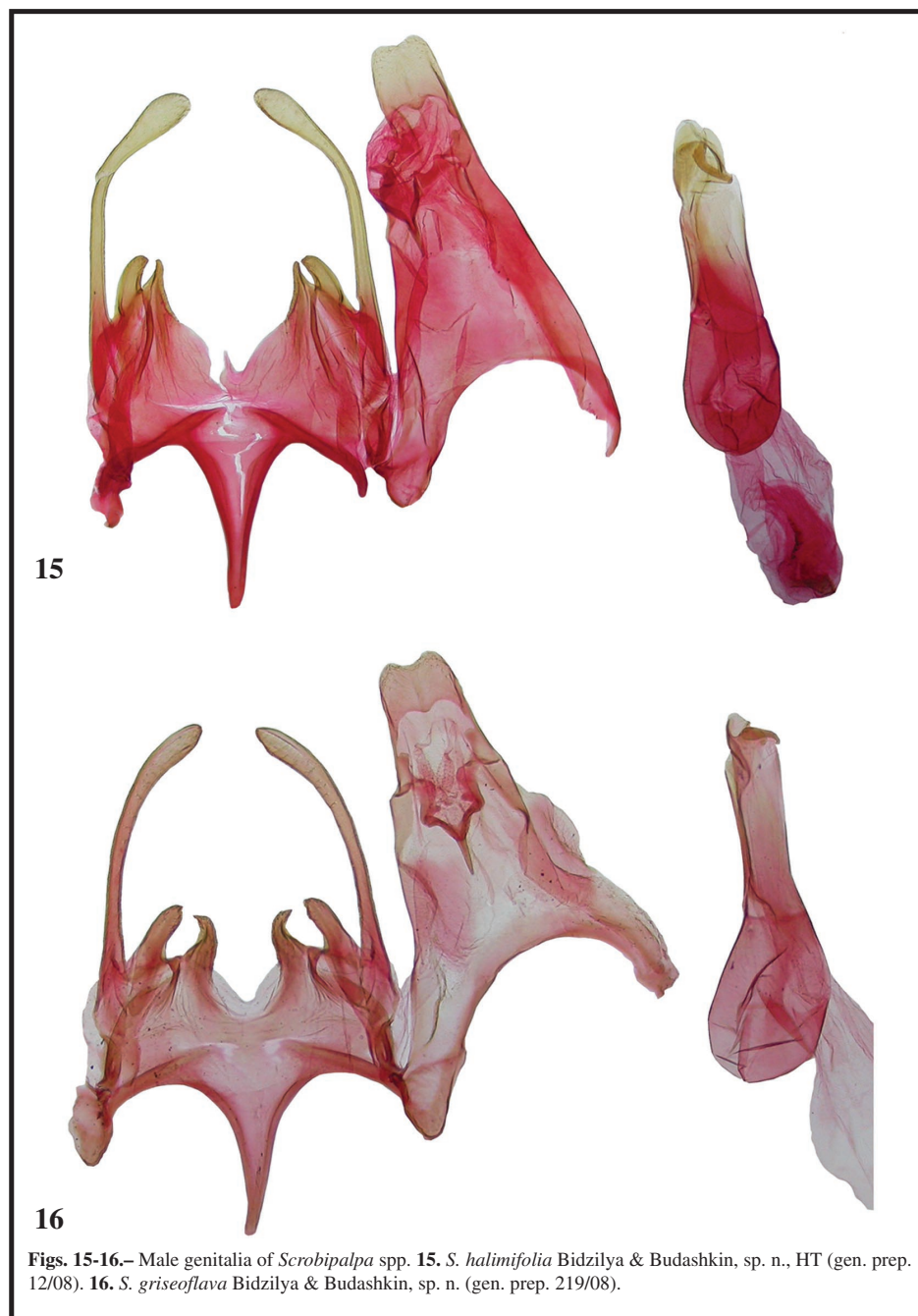


Figs. 1-8.— Adults of *Scrobipalpa* spp. **1-5.** *S. halimifolia* Bidzilya & Budashkin, sp. n. (1-HT); **6-8.** *S. griseoflava* Bidzilya & Budashkin, sp. n. (6-HT).

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